

ABSTRACT

A method of synthesizing a CO₂-philic analog of a CO₂-phobic compound, includes the step of: reacting the CO₂-phobic compound with a CO₂-philic compound selected from the group of a polyether substituted with at least one side group including preferably a Lewis base, a polycarbonate, a polycarbonate substituted with at least one side group including preferably a Lewis base, a vinyl polymer substituted with at least one side group including preferably a Lewis base a poly(ether-ester) or a poly(ether-ester) substituted with at least one side group including preferably a Lewis base, to create the CO₂-philic analog. A method of synthesizing a CO₂-phile includes the step of copolymerizing at least two monomers, wherein a polymer formed from homopolymerization of one of the monomers has a T_g of less than approximately 250 K and a steric factor less than approximately 1.8, at least one of the monomers contains a group that results in a pendant group from the CO₂-phile backbone that contains a Lewis base group, and the resultant CO₂-phile does not contain both hydrogen bond donors and acceptors.